

=> file reg

FILE 'REGISTRY' ENTERED AT 11:16:48 ON 04 JAN 2005
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=> display history full 11-

L1 FILE 'LREGISTRY' ENTERED AT 09:56:35 ON 04 JAN 2005
STR

L2 FILE 'REGISTRY' ENTERED AT 10:08:09 ON 04 JAN 2005
L3 0 SEA SSS SAM L1
L4 STR L1
L5 50 SEA SSS SAM L3
L6 STR L3
L7 50 SEA SSS SAM L5
L8 STR L5
L9 50 SEA SSS SAM L7
L10 STR L7
L11 23 SEA SSS SAM L9
253 SEA SSS FUL L9
SAV L11 VIJ910/A

L12 FILE 'HCA' ENTERED AT 10:31:55 ON 04 JAN 2005
207447 SEA (CHARG? OR HOLE# OR ELECTRON# OR E) (2A) (TRANSPORT?
OR MITGRAT? OR TRANSFER? OR MOVE OR MOVES OR MOVED OR
MOVING# OR MOVEMENT?)
L13 58424 SEA POLYPHENYLENE# OR POLYTHIOPENE# OR POLYETHENE# OR
POLYETHYNE# OR POLYANILINE# OR POLYFLUORENE# OR POLYPYRID
INE# OR (POLY OR POLYM? OR COPOLYM? OR HOMOPOLYM? OR
TERPOLYM? OR RESIN? OR GUM#) (2A) (PHENYLENE# OR THIOPHENE#
OR ETHENE# OR ETHYNE# OR ANILINE# OR FLUORENE# OR
PYRIDINE#)

FILE 'REGISTRY' ENTERED AT 10:36:32 ON 04 JAN 2005
E POLYPHENYLENE/CN
E POLY PHENYLENE/CN
E POLY-1,4-PHENYLENE/CN
E POLY-P-PHENYLENE/CN
E POLY-PARA-PHENYLENE/CN
E P-PHENYLENE, POLYMER/CN

L14 FILE 'LCA' ENTERED AT 10:39:52 ON 04 JAN 2005
22 SEA POLYPHENYLENE#

FILE 'REGISTRY' ENTERED AT 10:41:05 ON 04 JAN 2005

E P-POLYPHENYLENE/CN
E 1,4-POLYPHENYLENE/CN
E POLYTHIOPHENE/CN
L15 1 SEA POLYTHIOPHENE/CN
E POLYETHENE/CN
E POLYETHYLENE/CN
E POLYETHYLENE/CN
L16 1 SEA POLYETHYLENE/CN
E POLYETHYLENE/CN
E POLYACETYLENE/CN
L17 1 SEA POLYACETYLENE/CN
L18 1 SEA POLYANILINE/CN
E POLYFLUORENE/CN
L19 1 SEA POLYFLUORENE/CN
E POLYPYRIDINE/CN
L20 1 SEA POLYPYRIDINE/CN

FILE 'HCA' ENTERED AT 10:47:00 ON 04 JAN 2005

L21 3202 SEA POLYPHENYLENE#/IT

FILE 'REGISTRY' ENTERED AT 10:49:47 ON 04 JAN 2005

L22 1 SEA 9033-83-4
L23 7 SEA L15 OR L16 OR L17 OR L18 OR L19 OR L20 OR L22

FILE 'HCA' ENTERED AT 10:52:54 ON 04 JAN 2005

L24 182712 SEA L23
L25 109 SEA L11
L26 2 SEA L25 AND L12
L27 2 SEA L25 AND (L13 OR L24)
L28 405793 SEA (SURFACT? OR BIOSURFACT? OR HYDROTROP? OR DETERG? OR
ABSTERG? OR (SURFACE(W)ACTIVE# OR WETTING#) (A) (AGENT? OR
ADDITIVE? OR COMPOUND? OR COMPD# OR CMPD# OR CPD#) OR
EMULSIFIER? OR DISPERSANT? OR SOAP?)/BI,AB

FILE 'LCA' ENTERED AT 11:00:25 ON 04 JAN 2005

L29 2398 SEA (MIXT# OR MIXTURE? OR BLEND? OR ADMIX? OR COMMIX? OR
IMMIX? OR INTERMIX? OR COMPOSIT? OR COMPN# OR COMPSN# OR
FORMULAT? OR INTERSPER?)/TI
L30 15216 SEA (MIX? OR BLEND? OR ADMIX? OR COMMIX? OR IMMIX? OR
INTERMIX? OR DOPE# OR DOPING# OR DOPANT? OR IMPREGNAT?
OR COMPOSIT? OR COMPN# OR COMPSN# OR FORMULAT? OR
COMBINAT? OR INTERSPER? OR AMALGAM?)/BI,AB

FILE 'HCA' ENTERED AT 11:05:30 ON 04 JAN 2005

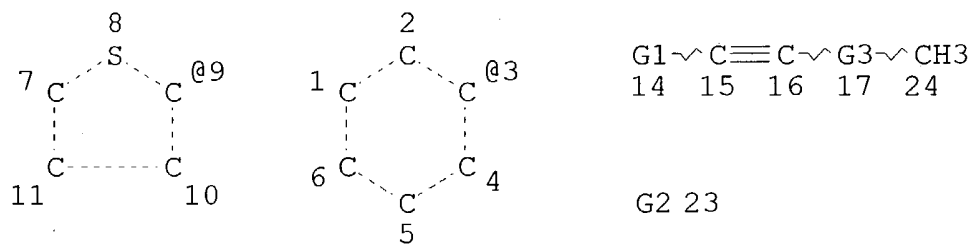
L31 42179 SEA (CONDUCT? OR COND#) (2A) L30
L32 1451 SEA L31 AND L12

L33 11 SEA L32 AND L28
 L34 269 SEA L32 AND (L13 OR L24)
 L35 4 SEA L34 AND L28
 L36 49958 SEA NANOSTRUCT? OR NANOCRYST? OR NANO(2A) (STRUCT? OR
 CRYST?)
 L37 3 SEA L34 AND L36
 L38 3 SEA L26 OR L27
 L39 13 SEA (L33 OR L35 OR L37) NOT L38

FILE 'REGISTRY' ENTERED AT 11:16:48 ON 04 JAN 2005

=> d l11 que stat

L9 STR



VAR G1=3/9

VAR G2=PO3H2/COOH/SO3H/OP3H2/OSO3H

REP G3=(0-20) CH2

NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 17

STEREO ATTRIBUTES: NONE

L11 253 SEA FILE=REGISTRY SSS FUL L9

100.0% PROCESSED 13232 ITERATIONS

253 ANSWERS

SEARCH TIME: 00.00.01

=> file hca

FILE 'HCA' ENTERED AT 11:17:30 ON 04 JAN 2005

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=> d 138 1-3 cbib abs hitstr hitind

L38 ANSWER 1 OF 3 HCA COPYRIGHT 2005 ACS on STN

141:251565 Cyanopyridone derivatives as liquid crystals. Farrand, Louise Diane; Heckmeier, Michael (Merck Patent G.m.b.H., Germany). PCT Int. Appl. WO 2004074253 A1 20040902, 52 pp. DESIGNATED STATES: W: AE, AE, AG, AL, AL, AM, AM, AM, AT, AT, AU, AZ, AZ, BA, BB, BG, BG, BR, BR, BW, BY, BY, BZ, BZ, CA, CH, CN, CN, CO, CO, CR, CR, CU, CU, CZ, CZ, DE, DE, DK, DK, DM, DZ, EC, EC, EE, EE, EG, ES, ES, FI, FI, GB, GD, GE, GE, GH, GM, HR, HR, HU, HU, ID, IL, IN, IS, JP, JP, KE, KE, KG, KG, KP, KP, KR, KR, KZ, KZ, KZ, LC, LK, LR, LS, LS, LT, LU, LV, MA, MD, MD, MG, MK, MN, MW, MX, MX, MZ, MZ, NA, NI; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, BF, BJ, CF, CG, CI, CM, GA, ML, MR, NE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2004-EP552 20040123. PRIORITY: EP 2003-3968 20030222.

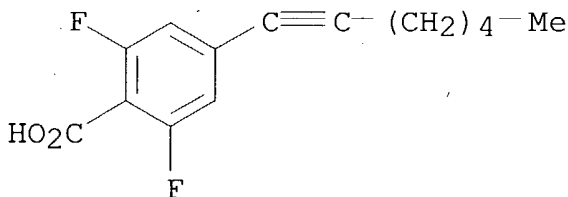
AB The invention relates to cyanopyridone derivs., to their use in liq. crystal media, liq. crystal devices, anisotropic polymers, optical, electrooptical, decorative, security, cosmetic, diagnostic, pharmaceutical, elec., electronic, **charge transport**, semiconductor, optical recording, electroluminescent, photoconductor and electrophotog. applications, and to liq. crystal media, polymers and displays comprising them.

IT 749900-86-5

(prepn. of cyanopyridone derivs. as liq. crystals for liq. crystal display)

RN 749900-86-5 HCA

CN Benzoic acid, 2,6-difluoro-4-(1-heptynyl)- (9CI) (CA INDEX NAME)



IC ICM C07D213-85

ICS C09K019-34

CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

IT 107-91-5 141-52-6, Ethanol sodium salt 874-14-6 28141-13-1 124728-45-6 331245-90-0 749900-86-5

(prepn. of cyanopyridone derivs. as liq. crystals for liq.

crystal display)

L38 ANSWER 2 OF 3 HCA COPYRIGHT 2005 ACS on STN

140:262427 Organic species that facilitate **charge**

transfer to or from nanostructures. Whiteford, Jeffery A.; Buretea, Mihai A.; Scher, Erik C. (Nanosys, Inc., USA). PCT Int. Appl. WO 2004022714 A2 20040318, 105 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2003-US27847 20030904. PRIORITY: US 2002-PV408722 20020905; US 2003-PV452232 20030304.

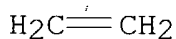
AB The present invention provides compns. (small mols., oligomers and polymers) that can be used to modify **charge transport** across a surface or a nanostructure (e.g., nanocrystal) surface, or within a nanostructure (e.g., nanocrystal) contg. matrix, as well as methods for making and using the novel compns. The compns. contain a conjugated org. species and at least one binding group capable of interacting with a nanostructure (e.g., nanocrystal) surface; during use, the compns. are coupled via the binding group to the nanostructure (e.g., nanocrystal) surface, such that the compns. are substantially conductive to electrons and/or **holes** being **transported** by/through the nanostructure (e.g., nanocrystal) (e.g., during the process of extg. or injecting the electrons or holes). The compns. of the present invention can optionally be derivatized with addnl. chem. groups, e.g., to enhance the electronic conjugation of the core org. species, to couple adjacent nanostructures (e.g., nanocrystals), or to facilitate dispersion, mixing and/or blending of nanostructures (e.g., nanocrystals) in various matrixes. In one aspect, the present invention provides conductive compns. for modification of **charge transport** across a nanostructure (e.g., nanocrystal) contg. matrix. The conductive compn. typically include (1) a conjugated org. moiety as the body structure, or core of the conductive mol.; (2) a nanostructure (e.g., nanocrystal) binding head group coupled to the body structure at a 1st position on the conjugated org. moiety; and (3) a tail group coupled to the body structure at a 2nd position on the conjugated org. moiety. After formation of an exciton in the nanostructure (e.g., nanocrystal) contg. matrix, the conductive compn. facilitates the injection and/or extn. of charge (electron and/or hole) with respect to the attached nanostructure, thereby modifying **charge transport** across a

IT nanostructure-contg. matrix.
9002-88-4D, derivs. 25013-01-8D,
Polypyridine, derivs. 25067-58-7D, Polyacetylene,
derivs. 95270-88-5D, Polyfluorene, derivs.
(org. species that facilitate charge transfer
to or from nanostructures)

RN 9002-88-4 HCA
CN Ethene, homopolymer (9CI) (CA INDEX NAME)

CM 1

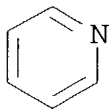
CRN 74-85-1
CMF C2 H4



RN 25013-01-8 HCA
CN Pyridine, homopolymer (9CI) (CA INDEX NAME)

CM 1

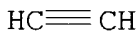
CRN 110-86-1
CMF C5 H5 N



RN 25067-58-7 HCA
CN Ethyne, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 74-86-2
CMF C2 H2

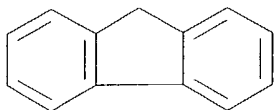


RN 95270-88-5 HCA
CN 9H-Fluorene, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 86-73-7

CMF C13 H10

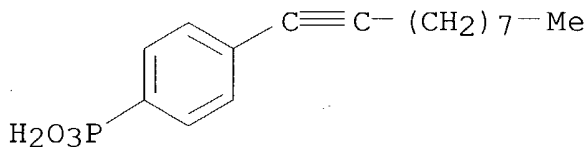


IT 671190-31-1P

(org. species that facilitate **charge transfer**
to or from nanostructures)

RN 671190-31-1 HCA

CN Phosphonic acid, [4-(1-decynyl)phenyl]- (9CI) (CA INDEX NAME)

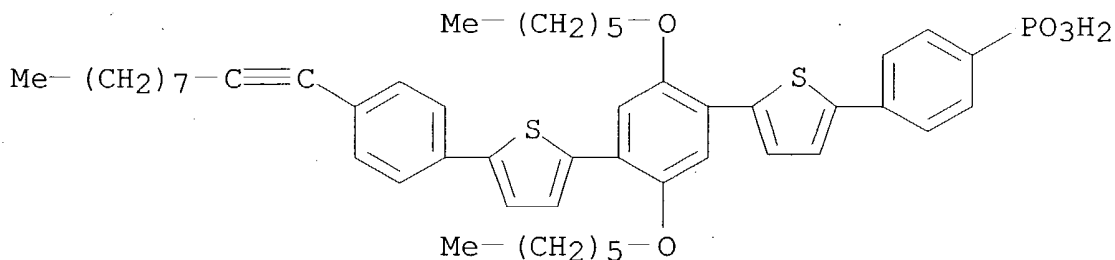


IT 671190-66-2P

(org. species that facilitate **charge transfer**
to or from nanostructures)

RN 671190-66-2 HCA

CN Phosphonic acid, [4-[5-[4-[5-[4-(1-decynyl)phenyl]-2-thienyl]-2,5-bis(hexyloxy)phenyl]-2-thienyl]phenyl]- (9CI) (CA INDEX NAME)



IC ICM C12N

CC 76-2 (Electric Phenomena)

Section cross-reference(s): 38

ST **charge transfer** mol. electronic device
nanocrystal

IT Polyacetylenes, uses

(derivs.; org. species that facilitate **charge transfer**
to or from nanostructures)

IT Conducting polymers

Electric conductors

Electric contacts

Electron acceptors

Electron donors

Electron transfer

Exciton

Molecular electronic devices

Nanostructures

Photoelectric devices

(org. species that facilitate **charge transfer**
to or from nanostructures)

IT **Charge transfer** complexes

Oligomers

Polyanilines

Polymers, uses

Polyphenyls

(org. species that facilitate **charge transfer**
to or from nanostructures)

IT Conducting polymers

(polythiophenes; org. species that facilitate **charge transfer**
to or from nanostructures)

IT 1306-25-8, Cadmium telluride, uses 22398-80-7, Indium phosphide,
uses

(nanostructure; org. species that facilitate **charge transfer**
to or from nanostructures)

IT 9002-88-4D, derivs. 25013-01-8D,

Polypyridine, derivs. 25067-58-7D, Polyacetylene,
derivs. 95270-88-5D, **Polyfluorene**, derivs.

104934-50-1D, Poly-3-hexylthiophene, derivs.

(org. species that facilitate **charge transfer**
to or from nanostructures)

IT 671190-31-1P 671190-41-3P

(org. species that facilitate **charge transfer**
to or from nanostructures)

IT 671190-46-8P 671190-63-9P 671190-66-2P 671190-69-5P

671190-72-0P 671190-75-3P 671190-80-0P 671190-89-9P

(org. species that facilitate **charge transfer**
to or from nanostructures)

IT 20677-12-7P 135567-84-9P 153033-31-9P 387860-46-0P

671190-24-2P 671190-27-5P 671190-36-6P 671190-51-5P

671190-55-9P 671190-59-3P 671190-78-6P 671190-83-3P

671190-86-6P 671190-92-4P

(org. species that facilitate **charge transfer**
to or from nanostructures)

IT 20743-91-3P 205884-48-6P

(org. species that facilitate **charge transfer**
to or from nanostructures)

133:350768 Studies on salts of amine-containing polymers with benzoic acids. III. Poly(N,N-dimethylaminoethyl methacrylate-g-polyethylene) with benzoic acids. Burillo, Guillermina; Bucio, Emilio; Cervera, Ernestina; Ogawa, Takeshi (Instituto de Ciencias Nucleares, Universidad Nacional Autonoma de Mexico, Mexico, 04510, Mex.). Journal of Applied Polymer Science, 78(5), 972-978 (English) 2000. CODEN: JAPNAB. ISSN: 0021-8995. Publisher: John Wiley & Sons, Inc..

AB Poly(N,N-dimethylaminoethyl methacrylate) [poly(DMAEMA)] was grafted onto a com. polyethylene film by means of .gamma.-irradn., and the grafted films were reacted with various liq. cryst.-forming benzoic acids. When polymeric salts consisting only of poly(DMAEMA) and the benzoic acids were heated, dissocn. of salts was obsd., but with poly(DMAEMA) grafted onto polyethylene films, salt dissocn. or crystn. of dissocd. acids could be avoided, and interesting morphologies, including liq.-crystal phases, were obsd. for the systems of benzoic acids-poly(DMAEMA-g-polyethylene).

IT 9002-88-4, Polyethylene 305802-38-4
(morphol. of poly(N,N-dimethylaminoethyl methacrylate-g-polyethylene) salts with liq. cryst.-forming benzoic acids)

RN 9002-88-4 HCA

CN Ethene, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 74-85-1

CMF C2 H4



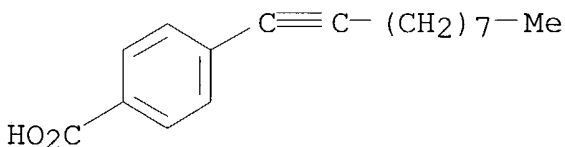
RN 305802-38-4 HCA

CN Benzoic acid, 4-(1-decynyl)-, compd. with 2-(dimethylamino)ethyl 2-methyl-2-propenoate graft polymer with ethene (9CI) (CA INDEX NAME)

CM 1

CRN 118788-02-6

CMF C17 H22 O2



CM 2

CRN 107227-29-2

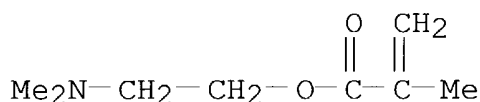
CMF (C8 H15 N O2 . C2 H4)x

CCI PMS

CM 3

CRN 2867-47-2

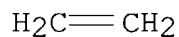
CMF C8 H15 N O2



CM 4

CRN 74-85-1

CMF C2 H4



CC 36-3 (Physical Properties of Synthetic High Polymers)
Section cross-reference(s): 75

IT **9002-88-4**, Polyethylene 25154-86-3, Poly(N,N-dimethylaminoethyl methacrylate) 107227-29-2, N,N-Dimethylaminoethyl methacrylate-ethylene graft copolymer
305802-35-1 305802-36-2 305802-37-3 **305802-38-4**
305802-39-5 305802-40-8
(morphol. of poly(N,N-dimethylaminoethyl methacrylate-g-polyethylene) salts with liq. cryst.-forming benzoic acids)

=> d 139 1-13 cbib abs hitstr hitind

L39 ANSWER 1 OF 13 HCA COPYRIGHT 2005 ACS on STN

139:262308 Coating compositions for hard coat layers and hard coat films with good transparence and antistatic properties. Hatakeda, Toshihiko; Nishiiri, Kiyoshi (Nippon Paper Industries, Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2003268316 A2 20030925, 8 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2002-76637 20020319.

AB Title compns. comprise radiation-curable resins, conductive polymers with mol. wt. 20,000-500,000 selected from quaternary ammonium salt-contg. polymers, sulfonic acid-contg. polymers, and

charge-transfer polymers, solvents with dielec. const. ≥ 9.0 and b.p. 80-180.degree., and solvents with dielec. const. ≥ 9.0 and b.p. < 80 .degree., where the content of solvents is ≥ 10 parts based on 100 parts total polymers. Thus, a compn. comprising NK Ester A TMMT 66.5, 50% Elecond PQ 50B quaternary ammonium salt-contg. (meth)acrylate copolymer soln. 60.0, Irgacure 184 3.5, ethanol with dielec. const. 23.8 and b.p. 78.3.degree. 70.0, 2-ethoxyethanol with dielec. const. 29.6 and b.p. 135.6.degree. 15.0, and BYK 300 **surfactant** 0.05 parts was applied on a A 4300 polyester film and irradiated with an UV light to give a hard coat film with good transparency, appearance, antistatic property, and pencil hardness.

IC ICM C09D201-00

ICS B32B027-16; C09D005-00; C09D133-14; C09D004-02

CC 42-10 (Coatings, Inks, and Related Products)

Section cross-reference(s): 73, 76

IT **Conducting** polymers

(blend with radiation curable polymers; coating compns. for hard coat films with good transparence and antistatic properties)

IT **Charge transfer** complexes

(polymers, blend with radiation-curable polymers; coating compns. for hard coat films with good transparence and antistatic properties)

L39 ANSWER 2 OF 13 HCA COPYRIGHT 2005 ACS on STN

138:129028 Process for forming a mixed solvent adhesive solution. Tamawskyj, Ihor W.; Yuan, Xiaoying; Crandall, Raymond K. (Xerox Corporation, USA). U.S. Pat. Appl. Publ. US 2003015690 A1 20030123, 13 pp. (English). CODEN: USXXCO. APPLICATION: US 2001-897275 20010703.

AB The present invention is directed to processes for prepg. mixed solvent adhesives useful in bonding belts used in electrostatog., including digital printing apparatuses. In specific embodiments, the present invention is directed to processes for prepg. mixed solvent adhesives useful in seaming belts, and more specifically, to endless flexible seamed belts in which an image can be transferred at the seam of the belt with little or no print defects caused by the seam. In embodiments, the present invention relates to processes for prepg. adhesives useful in xerog. component imageable seamed belts comprising mutually mating elements of a seam, in which the adhesive is present between mutually mating members. The process for prepg. mixed solvent adhesives comprises mixing alc. and acetates to the adhesive components. More specifically, the process comprises mixing an alc. and a polymer to form an adhesive soln.; mixing a **charge transporting** mol. and a solvent other than alc. (such as, e.g., an acetate) so as to form a **charge transport** soln.; adding the **charge**

transport soln. to the adhesive soln. to form a mixed solvent soln.; **mixing** an elec. **conductive** filler and a solvent to form a filled solvent soln.; and mixing the filled solvent soln. with the mixed solvent soln. so as to form a mixed solvent adhesive soln. In optional embodiments, a crosslinking agent can be added to crosslink the adhesive in soln. upon curing. In optional embodiments, a nonionic **surfactant** can be added to enable coatability of the adhesive.

IT **25233-34-5**, Polythiophene
 (filler; process for forming a mixed solvent adhesive soln.)
 RN 25233-34-5 HCA
 CN Thiophene, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 110-02-1
 CMF C4 H4 S



IC ICM H01B001-00
 ICS H01C001-00; H01B001-06; H01B001-12
 NCL 252500000; 252511000; 252519330
 CC 74-6 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
 IT Oxides (inorganic), uses
 Polyanilines
 Polymers, uses
 Quaternary ammonium compounds, uses
 (filler; process for forming a mixed solvent adhesive soln.)
 IT **Surfactants**
 (fluorosurfactants; process for forming a mixed solvent adhesive soln.)
 IT **Surfactants**
 (nonionic; process for forming a mixed solvent adhesive soln.)
 IT 519-73-3D, Triphenylmethane, bis(diethylamino) deriv. or bis(dihydroxy diethylamino) deriv. 28109-53-7D, [1,1'-Biphenyl]-ar,ar'-diamine, dihydroxy tetra-Ph deriv.
 (**charge transporting** mol.; process for forming a mixed solvent adhesive soln.)
 IT 1332-29-2, Tin oxide 1332-37-2, Iron oxide, uses 1344-28-1, Alumina, uses 7782-42-5, Graphite, uses 13463-67-7, Titania, uses 25014-41-9, Polyacrylonitrile **25233-34-5**, Polythiophene 30604-81-0, Polypyrrole 50926-11-9, Indium tin oxide

(filler; process for forming a mixed solvent adhesive soln.)

- L39 ANSWER 3 OF 13 HCA COPYRIGHT 2005 ACS on STN
 137:391362 Synthesis of surface-modified colloidal semiconductor **nanocrystals** and study of photoinduced **charge** separation and **transport** in **nanocrystal**-polymer composites. Talapin, D. V.; Poznyak, S. K.; Gaponik, N. P.; Rogach, A. L.; Eychmuller, A. (Institute of Physical Chemistry, University of Hamburg, Hamburg, 20146, Germany). Physica E: Low-Dimensional Systems & Nanostructures (Amsterdam, Netherlands), 14(1-2), 237-241 (English) 2002. CODEN: PELNFM. ISSN: 1386-9477. Publisher: Elsevier Science B.V..
- AB A review. This paper provides an overview of semiconductor **nanocrystals**, which were synthesized either by an aq. technique in the presence of different thiols as stabilizing agents (CdS, CdSe, CdTe, Cd_xHg_{1-x}Te, and HgTe) or via organometallic reactions (CdSe, CdTe, InP, and InAs). In all cases, successful wide-range tuning of the semiconductor band-gap energies was achieved by the control of the **nanocrystal** size. In addn., the surface properties of the **nanocrystals** can be controlled by the exchange of the capping ligand. Blends of **nanocrystals** and conducting polymers, were prepd. using CdTe **nanocrystals** and **polyaniline**, polypyrrole, or poly(3,4-ethylenedioxythiophene) (PEDT), and considered with respect to possible optoelectronic applications. The photoinduced **charge** sepn. and **transport** in the CdTe-PEDT composites was investigated by photoelectrochem. methods.
- CC 76-0 (Electric Phenomena)
 Section cross-reference(s): 38
- ST review IIIA pnictide semiconductor **nanocrystal** photovoltaic **conducting** polymer **composite**; IIB chalcogenide semiconductor **nanocrystal** photovoltaic **conducting** polymer **composite** review
- IT Charge separation
 (photoinduced; synthesis of surface-modified colloidal semiconductor **nanocrystals** and study of photoinduced **charge** sepn. and **transport** in **nanocrystal**-polymer composites)
- IT Composites
 Conducting polymers
Nanocrystals
 Photocurrent
 (synthesis of surface-modified colloidal semiconductor **nanocrystals** and study of photoinduced **charge** sepn. and **transport** in **nanocrystal**-polymer composites)
- IT Group IIB element chalcogenides
 Group IIIA element pnictides

(synthesis of surface-modified colloidal semiconductor **nanocrystals** and study of photoinduced **charge** sepn. and **transport** in **nanocrystal**-polymer composites)

L39 ANSWER 4 OF 13 HCA COPYRIGHT 2005 ACS on STN

136:217623 Nanocomposite of **Polyaniline** and

Na⁺-Montmorillonite Clay. Kim, Bo-Hyun; Jung, Jae-Hoon; Hong, Seung-Hoon; Joo, Jinsoo; Epstein, Arthur J.; Mizoguchi, Kenji; Kim, Ji W.; Choi, Hyoung J. (Department of Physics and Center for Electro- & Photo-Responsive Molecules, Korea University, Seoul, 136-701, S. Korea). *Macromolecules*, 35(4), 1419-1423 (English) 2002. CODEN: MAMOBX. ISSN: 0024-9297. Publisher: American Chemical Society.

AB Nanocomposites of conducting **polyaniline** (PAN) with inorg. Na⁺-montmorillonite (MMT) clay were synthesized by the emulsion polymn. method. The dodecylbenzenesulfonic acid (DBSA) was used for both dopant and **emulsifier**. Analyses of x-ray diffraction patterns demonstrated that conducting PAN-DBSA was intercalated between inorg. clay layers at the nanoscale level (<10 .ANG.). We obsd. that the clay induced more disordered state in PAN-DBSA/clay nanocomposites. From the temp.-dependent DC cond. [$\sigma_{dc}(T)$] expts., we studied **charge transport** mechanism of the PAN-DBSA and PAN-DBSA/clay systems. The interaction between the intercalated PAN-DBSA and the clay layers was obsd. by FT-IR spectra. The results of differential scanning calorimetry (DSC) and thermogravimetric anal. (TGA) showed the improved thermal stability of the nanocomposite materials. The σ_{dc} of these systems was 10⁻¹⁰-10⁻² S/cm at room temp., varying with dopant molar ratio. The $\sigma_{dc}(T)$ of the nanocomposite of PAN-DBSA/clay was represented by the quasi-one-dimensional variable range hopping model. From ESR expts., magnetic susceptibility was obtained for the systems. We discuss the effects of the intercalation and clay on **charge transport**, structural, and thermal properties for PAN-DBSA/clay nanocomposites.

IT 25233-30-1P, **Polyaniline**

(dodecylbenzenesulfonic acid **doped**; elec. cond . and magnetic susceptibility of **polyaniline** /Na⁺-montmorillonite clay nanocomposite)

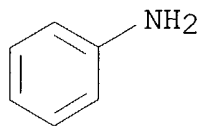
RN 25233-30-1 HCA

CN Benzenamine, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 62-53-3

CMF C6 H7 N



- CC 37-6 (Plastics Manufacture and Processing)
Section cross-reference(s): 76
- ST elec cond magnetic susceptibility **polyaniline**
montmorillonite nanocomposite
- IT **Polyanilines**
(dodecylbenzenesulfonic acid **doped**; elec. cond
. and magnetic susceptibility of **polyaniline**
/Na+-montmorillonite clay nanocomposite)
- IT Conducting polymers
Dopants
Electric conductivity
Emulsifying agents
Magnetic susceptibility
Nanocomposites
(elec. cond. and magnetic susceptibility of
polyaniline /Na+-montmorillonite clay nanocomposite)
- IT Intercalation compounds
(elec. cond. and magnetic susceptibility of **polyaniline**
/Na+-montmorillonite clay nanocomposite)
- IT Polymerization
(emulsion; to prep. **polyaniline** /Na+-montmorillonite
clay nanocomposite)
- IT **25233-30-1P, Polyaniline**
(dodecylbenzenesulfonic acid **doped**; elec. cond
. and magnetic susceptibility of **polyaniline**
/Na+-montmorillonite clay nanocomposite)
- IT 27176-87-0, Dodecylbenzenesulfonic acid
(dopant and **emulsifier**; elec. cond. and magnetic
susceptibility of **polyaniline** /Na+-montmorillonite clay
nanocomposite)
- IT 1318-93-0, Montmorillonite, uses
(elec. cond. and magnetic susceptibility of **polyaniline**
/Na+-montmorillonite clay nanocomposite)
- L39 ANSWER 5 OF 13 HCA COPYRIGHT 2005 ACS on STN
135:331836 Introduction to electronic polymers: Influence of
nanosstructure on electronic phenomena. Epstein, A. J.
(Department of Physics and Department of Chemistry, The Ohio State
University, Columbus, OH, 43210-1106, USA). Springer Series in
Materials Science, 41(Organic Electronic Materials), 3-37 (English)
2001. CODEN: SSMSE2. ISSN: 0933-033X. Publisher: Springer-Verlag.

- AB A review with refs. is given on the exptl. detection of inhomogeneous morphol. and the implications for the control of the structural order on the photophysics and device physics of semiconducting light-emitting polymers and on the **charge transport** and optical properties of **doped conducting** polymers. The following topics are considered: inhomogeneous structure of electronic polymers (pristine and iodine-doped trans-(CH)_x, **polyaniline**, and PF₆-doped polypyrrole), semiconducting polymers (fluorescence properties of solns., fluorescence of solid samples: aggregate formation, and time-resolved luminescence, morphol.), and conducting polymers (models for elec. cond. and elec. cond.).
- CC 36-0 (Physical Properties of Synthetic High Polymers)
Section cross-reference(s): 73, 76
- IT Polymers, properties
(doped; polymer **nanostucture** effects on electronic properties)
- IT Phosphors
(electroluminescent; polymer **nanostucture** effects on electronic properties)
- IT Conducting polymers
Fluorescent substances
Luminescent substances
Polymer morphology
(polymer **nanostucture** effects on electronic properties)
- IT Semiconductor materials
(polymers; polymer **nanostucture** effects on electronic properties)
- L39 ANSWER 6 OF 13 HCA COPYRIGHT 2005 ACS on STN
- 135:123446 Effect of dopant and clay on nanocomposites of **polyaniline** (PAN) intercalated into Na⁺-montmorillonite (Na⁺-MMT). Kim, B. H.; Jung, J. H.; Kim, J. W.; Choi, H. J.; Joo, J. (Department of Physics and Center for Electro & Photo Responsive Molecules, Korea University, Seoul, 136-701, S. Korea). Synthetic Metals, 121(1-3), 1311-1312 (English) 2001. CODEN: SYMEDZ. ISSN: 0379-6779. Publisher: Elsevier Science S.A..
- AB The nanocomposites of **polyaniline** (PAN) and Na⁺-montmorillonite (Na⁺-MMT) were synthesized by emulsion polymn. using dodecylbenzenesulfonic acid (DBSA) or camphorsulfonic acid (CSA) as dopant and **emulsifier**. In the x-ray diffraction patterns of the systems, we obsd. that the layer of conducting PAN-DBSA or PAN-CSA between the clay layers was in nanoscale layers (.ltoreq.10 .ANG.). The temp. dependence of dc cond. [.sigma.dc(T)] for the nanocomposites followed a quasi-one dimensional (1D) variable range hopping (VRH) model. The .sigma.dc(T) varied with the dopant used and the molar ratio. From temp. dependent EPR

expts., we obtained the magnetic susceptibility and the line width of the system. The Na⁺-MMT clay layer plays important role for interchain interaction of the system. The effects of dopant and the layer of Na⁺-MMT on **charge transport** and structure are discussed.

IT **25233-30-1, Polyaniline**
 (intercalated compd. with montmorillonite; effect of dopant and clay on elec. cond. and magnetic susceptibility of nanocomposites of **polyaniline** intercalated into Na⁺-montmorillonite)

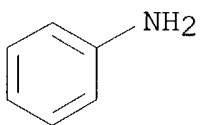
RN 25233-30-1 HCA

CN Benzenamine, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 62-53-3

CMF C6 H7 N



CC 38-3 (Plastics Fabrication and Uses)

ST nanocomposite **polyaniline** montmorillonite intercalated clay **dopant cond** magnetic susceptibility; dopant dodecylbenzenesulfonic camphorsulfonic nanocomposite **polyaniline** cond magnetic susceptibility

IT Electric **conductivity**
 Emulsifying agents
 Magnetic susceptibility
 Nanocomposites
 (effect of **dopant** and clay on elec. cond. and magnetic susceptibility of nanocomposites of **polyaniline** intercalated into Na⁺-montmorillonite)

IT **Polyanilines**
 (intercalated compd. with montmorillonite; effect of dopant and clay on elec. cond. and magnetic susceptibility of nanocomposites of **polyaniline** intercalated into Na⁺-montmorillonite)

IT 1318-93-0, Montmorillonite, uses
 (Na⁺-, intercalated compd. with **polyaniline**; effect of dopant and clay on elec. cond. and magnetic susceptibility of nanocomposites of **polyaniline** intercalated into Na⁺-montmorillonite)

IT 3144-16-9, Camphorsulfonic acid 27176-87-0, Dodecylbenzenesulfonic acid
 (dopant; effect of dopant and clay on elec. cond. and magnetic susceptibility of nanocomposites of **polyaniline**)

intercalated into Na⁺-montmorillonite)

IT 25233-30-1, **Polyaniline**

(intercalated compd. with montmorillonite; effect of dopant and clay on elec. cond. and magnetic susceptibility of nanocomposites of **polyaniline** intercalated into Na⁺-montmorillonite)

L39 ANSWER 7 OF 13 HCA COPYRIGHT 2005 ACS on STN

132:159430 Novel heterojunctions based on conducting polymers. Aldissi, M.; Lazaro, E.; Bhamidipati, M.; Dixon, B. (Cape Cod Research, UK). Annual Technical Conference - Society of Plastics Engineers, 57th(Vol. 2), 1577-1583 (English) 1999. CODEN: ACPE4. ISSN: 0272-5223. Publisher: Society of Plastics Engineers.

AB This paper describes the fabrication and characterization of junction devices based on the **combination** of **conducting** polymers and nanoparticles or nanotemplates of n-type inorg. semiconductors for photovoltaic and thermoelec. applications. Several materials, the choice of which derives from their stability, soln. processability and film forming properties, have been synthesized. We have explored in this effort the use of **electron transfer** materials in order to optimize the barrier interface. Characteristics of the novel heterostructures are described.

CC 76-3 (Electric Phenomena)

Section cross-reference(s): 38, 66, 73

IT 135899-66-0, 3-Thiophenepropanesulfonic acid 160391-42-4, 3-Thiophenehexanesulfonic acid

(**dispersants**; semiconductor heterojunctions based on conducting polymers)

L39 ANSWER 8 OF 13 HCA COPYRIGHT 2005 ACS on STN

131:200555 Synthesis and characterization of **polyaniline**

-polycarbonate composites prepared by an emulsion polymerization. Jeon, Byoung Ho; Kim, Seok; Choi, Min Ho; Chung, In Jae (Department of Chemical Engineering, Korea Advanced Institute of Science and Technology, Yusong, Taejon, S. Korea). Synthetic Metals, 104(2), 95-100 (English) 1999. CODEN: SYMEDZ. ISSN: 0379-6779. Publisher: Elsevier Science S.A..

AB Elec. **conductive** polymer **composite**,

polyaniline (PANI)-dodecylbenzenesulfonic acid

(DBSA)/polycarbonate (PC), was prepd. by inverse emulsion polymn. with DBSA as both **surfactant** and dopant. FT-IR

spectroscopy for the composite showed the existence of hydrogen bonding between PANI and PC which caused the increase of glass-transition temp. with PANI content. The elec. cond. increased around Tg because the PANI chains contacted more frequently and facilitated the **electron transfer** through the

hydrogen bonding between PANI and PC. Tensile strength of the composite decreased with PANI content because PANI functioned as a

defect in PC matrix and the tensile modulus continuously increased because PANI had a higher rigidity of mols.

IT **25233-30-1**, Benzenamine, homopolymer
(synthesis, elec. cond., mech. properties, and morphol. of
polyaniline-polycarbonate composites by emulsion polymn.)

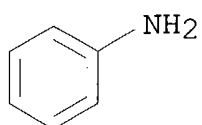
RN 25233-30-1 HCA

CN Benzenamine, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 62-53-3

CMF C6 H7 N



CC 37-3 (Plastics Manufacture and Processing)

Section cross-reference(s): 35, 76

ST **polyaniline** polycarbonate dodecylbenzenesulfonic
composite elec **cond** glass temp; aniline
polycarbonate inverted emulsion polymn dodecylbenzenesulfonic
surfactant dopant

IT Polymerization
(inverse emulsion; synthesis, elec. cond., mech. properties, and
morphol. of **polyaniline**-polycarbonate composites by
emulsion polymn.)

IT Electric conductivity
Glass transition temperature
Polymer morphology

Surfactants

(synthesis, elec. cond., mech. properties, and morphol. of
polyaniline-polycarbonate composites by emulsion polymn.)

IT **Polyanilines**

Polycarbonates, properties

Polymer **blends**

(synthesis, elec. **cond.**, mech. properties, and morphol.
of **polyaniline**-polycarbonate composites by emulsion
polymn.)

IT 24936-68-3, Bisphenol A-carbonic acid copolymer, sru, properties
(Panlite; synthesis, elec. cond., mech. properties, and morphol.
of **polyaniline**-polycarbonate composites by emulsion
polymn.)

IT 27176-87-0, Dodecylbenzenesulfonic acid
(dopant and **surfactant**; synthesis, elec. cond., mech.
properties, and morphol. of **polyaniline**-polycarbonate

composites by emulsion polymn.)

- IT 25037-45-0, Bisphenol A-carbonic acid copolymer **25233-30-1**
, Benzenamine, homopolymer
(synthesis, elec. cond., mech. properties, and morphol. of
polyaniline-polycarbonate composites by emulsion polymn.)

L39 ANSWER 9 OF 13 HCA COPYRIGHT 2005 ACS on STN

- 119:260189 Conducting Langmuir-Blodgett films of hexadecyl-BEDT-TTF
charge-transfer salts with inorganic compounds.

Berzina, Tatiana S.; Troitsky, Vladimir I.; Stussi, Elisa; Mule,
Marcello; De Rossi, Danilo (Zelenograd Research Institute of
Physical Problems, Moscow, 103460, Russia). Synthetic Metals,
60(2), 111-14 (English) 1993. CODEN: SYMEDZ. ISSN: 0379-6779.

- AB A method for forming conducting Langmuir-Blodgett films of
charge-transfer salts based on the interaction
between **surfactant** donor mols. spread at the air/water
interface and inorg. compds. dissolved in water is proposed. Films
of hexadecylbis(ethylenedithio)tetrathiafulvalene with small addns.
of **surfactant** acceptor mols. were deposited from water
subphases contg. FeCl₃ or CuSO₄. High quality films with cond. of 2
.OMEGA.-1 cm⁻¹ were deposited at pH of 3.8 when Fe³⁺ ions at a
concn. of 10⁻⁴ M were used. In order to study the interaction of
donor mols. with the compds. dissolved in water, electron probe
anal. of the films was carried out. Variants of **charge-**
transfer salt formation are discussed.

CC 76-2 (Electric Phenomena)

Section cross-reference(s): 66

- ST Langmuir Blodgett conductor hexadecylbisethylenedithiotetrathiafulva
lene inorg salt; **charge transfer** salt iron
chloride hexadecylbisethylenedithiotetrathiafulvalene; copper
sulfate hexadecylbisethylenedithiotetrathiafulvalene **charge**
transfer salt; hexadecyl BEDTTTF Langmuir Blodgett film
conductor

- IT Electric conductivity and conduction

(Langmuir-Blodgett films of hexadecyl-BEDT-TTF **charge-**
transfer salts with inorg. compds.)

- IT Electric conductors

(Langmuir-Blodgett films, of hexadecyl-BEDT-TTF **charge-**
transfer salts with inorg. compds.)

- IT 142177-36-4 142358-56-3

(Langmuir-Blodgett **conducting** films from **mixt**
. of, with hexadecyl-BEDT-TTF deposited from water subphases
contg. iron chloride or copper sulfate)

- IT 126223-47-0, Hexadecyl-BEDT-TTF

(Langmuir-Blodgett **conducting** films from **mixt**
. of, with **surfactant** acceptors deposited from water
subphases contg. iron chloride or copper sulfate)

L39 ANSWER 10 OF 13 HCA COPYRIGHT 2005 ACS on STN

116:140118 Electrophotographic photoconductors with photosensitive layer containing polysilanes. Anayama, Hideki; Koyama, Takashi; Hashimoto, Yuichi; Hirayama, Noriko; Tanaka, Hisami (Canon K. K., Japan). Jpn. Kokai Tokkyo Koho JP 03271748 A2 19911203 Heisei, 21 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1990-69826 19900322.

AB The title photoconductors have a conductive substrate, an interlayer contg. fine spherical powder of silicone resin with av. particle diam. 0.6-6.0 .mu.m, and polysilane-contg. photosensitive layer. This interlayer increase adhesivity of the polysilane-contg. layer and durability of the photoconductor. This layer also prevents formation of interference fringe when the photoconductor is used for imaging with laser beam. Thus, an Al cylinder was coated with a **compn. contg. conductive** TiO₂ 100, TiO₂ 100, phenol resin 125, silicone **surfactant** 0.02, spherical poly(methylsilsesquioxane) particles (av. diam. 1.3 .mu.m) 20 parts and solvents and dried to form a 20-.mu.m-thick interlayer. A copolymer Nylon adhesive layer, charge-generating layer contg. chloroaluminum phthalocyanine, and a **charge-transporting** layer contg. hexyl-terminated poly(dichloromethylphenylsilane) were successively coated, to obtain a photoconductor with excellent performance.

IC ICM G03G005-14

CC 74-3 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

IT 544-10-5D, Hexyl chloride, reaction product with dichlorosilane polymers 31324-77-3D, Dichloromethylphenylsilane polymer, terminated with alkyl or aryl groups 88993-02-6D, undecyl-terminated 133644-67-4D, hexyl-terminated 138446-50-1 138446-51-2 138446-52-3

(as **charge-transporting** agent of electrophotog. photoconductor)

L39 ANSWER 11 OF 13 HCA COPYRIGHT 2005 ACS on STN

112:180654 Electrically **conductive compositions** for antistatic moldings and coatings. Nakamura, Tomio; Shimizu, Shigeru (Nitto Denko Corp., Japan). Jpn. Kokai Tokkyo Koho JP 01236273 A2 19890921 Heisei, 5 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1988-64399 19880316.

AB Title compns. with good film-forming and molding properties comprise polymers, TCNQ complexes, **surfactants** or silicone oils, and org. solvents. A mixt. of N-butylisoquinolinium-TCNQ complex 1.0, polyacrylonitrile 5.0, DMF 45, and Emulgen 903 (I) 0.25 g was coated on glass and dried at 100.degree. to give a smooth 5-.mu.m coating with surface resistivity 3.0 .times. 10³ .OMEGA./cm², vs. 1.1 .times. 10⁶ for a rough coating prepd. without I.

IC ICM C08L101-00

ICS C08K005-00; C08K005-17; C08L033-20
ICA C08L053-00; C08L069-00
ICI C08L101-00, C08L083-04
CC 37-6 (Plastics Manufacture and Processing)
Section cross-reference(s): 38, 42
ST elec cond polymer TCNQ complex; **surfactant** TCNQ complex
antistatic; silicone oil TCNQ complex antistatic; antistatic resin
TCNQ complex; coating antistatic TCNQ complex; molding antistatic
TCNQ complex; isoquinolinium TCNQ antistatic agent; antistatic TCNQ
ammonium complex
IT **Charge-transfer** complexes
(of TCNQ, polymers contg., antistatic)
IT Electric conductors
(polymer-TCNQ complex mixts. contg. **surfactants** and
silicone oils)
IT **Surfactants**
(polymers contg. TCNQ complexes and, antistatic)
L39 ANSWER 12 OF 13 HCA COPYRIGHT 2005 ACS on STN
109:162183 Electrically **conductive** ferrofluid
composition. Meguro, Kenjiro; Yokouchi, Atsushi (Nippon
Seiko K. K., Japan). Ger. Offen. DE 3737909 A1 19880526, 6 pp.
(German). CODEN: GWXXBX. APPLICATION: DE 1987-3737909 19871107.
PRIORITY: JP 1986-268277 19861111.
AB The ferrofluid compn. contains an org. solvent as a liq. carrier, a
charge-transfer complex to render the
compn. conductive, fine ferromagnetic particles,
and an additive for stable dispersion of the particles in the
solvent. The elec. cond. prevents charge buildup on the ferrofluid.
A ferrofluid prepd. from magnetite particles, Na oleate as
surfactant, poly-.alpha.-olefin oil as solvent, a pyrene-I
charge-transfer complex, and polyoxyethylene
nonylphenyl ether additive, as a ring of inside diam. 7, outside
diam. 7.4, and thickness 0.7 mm, had elec. resistance of 6 M.OMEGA..
IC ICM H01F001-28
ICS C09D005-24
ICA B01F017-00; C09K003-10
CC 77-8 (Magnetic Phenomena)
Section cross-reference(s): 76
ST elec conductive ferrofluid; **charge transfer**
complex ferrofluid; magnetite suspension ferrofluid; pyrene iodine
complex ferrofluid
IT Ferrofluids
(elec. conductive, contg. **charge-transfer**
complexes)
IT Electric conductors
(ferrofluids, contg. **charge-transfer**
complexes)

- IT 143-19-1, Sodium oleate
(**surfactant**, in elec. conductive ferrofluids)
- L39 ANSWER 13 OF 13 HCA COPYRIGHT 2005 ACS on STN
107:116372 A conduction electron spin resonance study of interactions in carbon-black-polymer composites. Harbour, John R.; Walzak, Mary Jane (Xerox Res. Cent. Canada, Mississauga, ON, L5K 2L1, Can.). Journal of Colloid and Interface Science, 119(1), 150-4 (English) 1987. CODEN: JCISA5. ISSN: 0021-9797.
- AB Carbon black-filled polymer composites made either by extrusion or by ultrasonic irradiation and subsequent solvent casting into films gave rise to a conduction ESR (CESR) signal. This narrow CESR signal with a linewidth (.DELTA.Hpp) of 3 G was equiv. to the signal produced upon electrochem. redn. of the carbon black. The broad CESR signal assocd. with charge carriers in this black was also used to probe polymer-carbon black interactions by observing changes in linewidth. Inclusion of a **surfactant** in the composite during extrusion resulted in its adsorption onto the carbon black. This led to a redn. in the narrow CESR signal and an increase in the .DELTA.Hpp of the broad CESR signal.
- CC 37-5 (Plastics Manufacture and Processing)
Section cross-reference(s): 76, 77
- ST carbon black polymer interaction ESR; **conduction** ESR
polymer **composite** interaction
- IT Electric conductors
(carbon black-filled polymer **composites**, interactions in, **conduction** ESR study of)
- IT **Electron**, conduction
(**transport** of, in carbon black-filled polymers)
- IT 577-11-7, Bis(2-ethylhexyl)sodium sulfosuccinate
(**surfactants**, carbon black-filled polymers contg. AOTB, interactions in, conduction ESR study of)
- IT 57-09-0, CTAB
(**surfactants**, carbon black-filled polymers contg. CTAB, interactions in, conduction ESR study of)